

Animators R Us

High School

Math Performance Task

by

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Animators R Us

Purpose: The purpose of this task is to assess the student's understanding of the use of matrix multiplication to transform geometric objects in a plane. The task may be used at the culmination of activities dealing with matrix multiplication for the purpose of transforming objects, writing coordinates of geometric figures in matrix form, using matrices on a graphing calculator, and programming using debugging skills. This task requires that students create an animation using the graphing calculator and present the animation to the entire class. The student will use the T1-83 Viewscreen and Viewscreen Calculator to demonstrate their animation to the class. The T1-Graph Link will be used to save the program to a computer disk and to print a hardcopy of the animation.

Show-Me Standards Addressed:

Knowledge: M2, M6,

Performance: 1.4, 1.6, 2.1

Grade Level range: 10-12 (Algebra II or above)

Subject Area: Math

Materials and Resources Needed: T1-83 Graphing Calculator, T1-83 Viewscreen and Viewscreen Calculator, T1-Graph Link, Student Performance Task Packet which includes the Student Prompt, Written Plan for Program and the Scoring Guide.

Time Needed for Task: 3-4 class periods of 45 minutes each

Instructions for Administration: Provide students with a copy of the task and go over the student prompt so students understand what it is they are to do. Provide a copy of the Scoring Guide to students so know how the task will be assessed and the needed components of a quality product. Upon completion of the presentation, ask that students provide you with a hardcopy of their creation.

Pre-assessment Instructions: The teacher will, as part of a pre-assessment activity, review the following concepts:

- Matrix multiplication
- Transformations
- Writing coordinates of geometric figures in matrix form
- Using matrices on a graphing calculator
- Programming using debugging skills

Animators R Us

You are an apprentice animator with a graphics design company. You were asked to create animations for a cartoon scene in its initial stages of development. You will only be using stick figures at this stage in the development process.

Your task is to create an animated stick figure using a program and matrices on a graphing calculator and present your final product to your company's lead animator.

You will use a graphing calculator to create your figure, the T1-83 Viewscreen and Viewscreen Calculator to present your creation, and T1-Graph Link to save your program on a computer disk and print it on paper.

Scoring Guide: Animators R Us

Criteria to be assessed	4	3	2	1
Knowledge of transformations using matrix multiplication	Shows a clear, accurate understanding of using matrix multiplication to perform transformations	Shows an understanding of using matrix multiplication to perform transformations	Shows a partial understanding of using matrix multiplication to perform transformations	Shows little or no understanding of using matrix multiplication to perform transformations.
Creation of an animation using a program and matrices on the graphing calculator	Creates an imaginative animation using all three transformations	Creates an animation using all three transformations	Has partial success in the creation of an animation; may use one or two types of transformations.	Shows little understanding in the creation of an animation.
Creation of a visual and oral presentation	Presents animation with thorough, accurate explanation that is focused and clearly communicates purpose.	Presents animation with an explanation that is for the most part accurate and focused.	Presents animation but the explanation may be difficult to understand, may lack focus, or contain flawed reasoning.	Attempts to present animation and explanation but it is apparent there is little or no understanding of the task